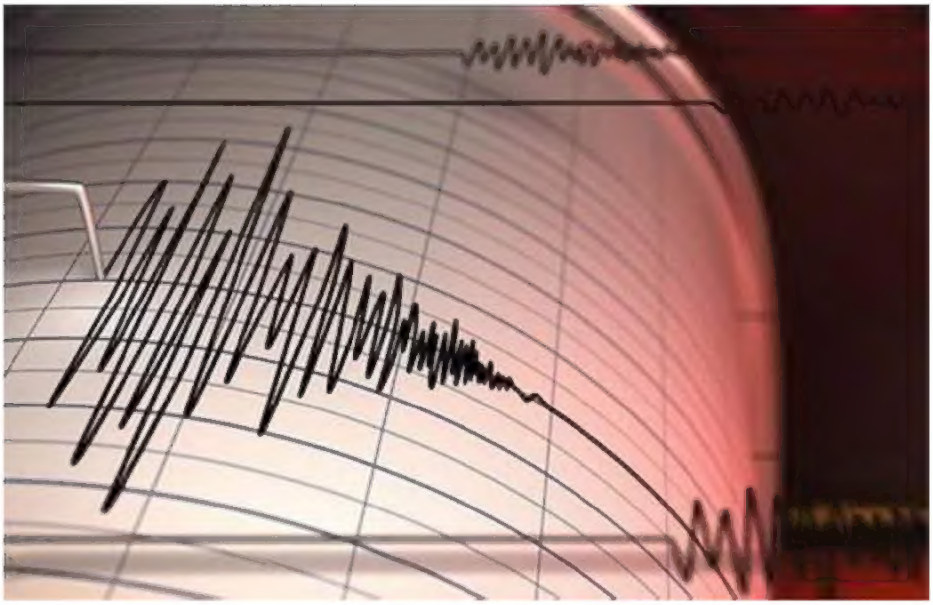
Artificial Earthquake



An artificial earthquake, also known as induced seismicity, refers to earthquakes that are triggered by human activities, rather than naturally occurring tectonic shifts. These events occur when human actions alter the stress and strain within the Earth's crust, leading to a rupture and the release of energy.

Here's a more detailed explanation:

- Naturally Occurring Earthquakes:

These earthquakes happen due to the movement of tectonic plates, which are large sections of the Earth's crust. The plates constantly shift and interact, building up stress until it is released in the form of an earthquake.

- **Human-Induced Earthquakes:**
These are earthquakes triggered by human activities that disrupt the Earth's crustal equilibrium. Common causes include:
- **Fluid Injection and Extraction:**
Pumping fluids (like water or wastewater) into the ground (e.g., for oil and gas extraction, geothermal energy) or extracting fluids can change pressure and stress within the Earth, potentially triggering earthquakes.
- **Mining and Quarrying:**
Excavation activities can remove support from surrounding rock, leading to instability and potential quakes.
- **Reservoir Construction:**
The immense weight of water stored in large reservoirs can exert pressure on the underlying ground, sometimes causing earthquakes.
- **Underground Nuclear Testing:**
While less common now, this can also trigger seismic events.
- **Magnitude and Frequency:**
Most induced earthquakes are of low magnitude. However, some locations have experienced larger, more noticeable events, and a

few have caused public concern or even damage.

- Research and Mitigation:

Scientists are actively researching induced seismicity to better understand the risks and develop methods to mitigate or prevent these events, particularly in areas with high levels of human activity.

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https://archive.org/details/@wazefapress

Resources:

https://en.m.wikipedia.org/wiki/Induced_seismicity

https://www.gfz.de/en/press/news/details/schluesselfaktoren-bei-der-entstehung-von-menschgemachten-erdbeben

https://en.m.wikipedia.org/wiki/Earthquake

https://flexbooks.ck12.org/cbook/ck-12-middle-school-earth-science-flexbook-2.0/section/6.8/primary/lesson/earthquakes-at-transform-plate-boundaries-ms-es/

https://now.northropgrumman.com/what-are-spacequakes-and-how-do-they-happen

https://www.eskp.de/en/natural-hazards/man-made-earthquakes-935917/

https://en.m.wikipedia.org/wiki/Induced_seismicity

https://climate.axa/publications/when-humans-create-earthquakes/